

**United States Environmental Protection Agency**  
Region 5  
Air and Radiation Division  
77 West Jackson Boulevard  
Chicago, IL 60604-3590

**DATE:** DEC 13 2010

**SUBJECT:** Unannounced Inspection of Sun Chemical  
Kankakee, Illinois

**FROM:** Jennifer Wilson, Environmental Engineer  
Air Enforcement and Compliance Assurance Section (IL/IN)

**THRU:** Brent Marable, Chief   
Air Enforcement and Compliance Assurance Section (IL/IN)

**TO:** File

**Facility:** Sun Chemical  
**Location:** Kankakee, Illinois  
**Inspection Date:** November 2, 2010  
**Inspection Team:** Jennifer Wilson, EPA Region 5  
Shannon Downey, EPA Region 5  
**Facility Attendees:** John McBurrows, Plant Manager  
Wade Meyer, Chemist –  
Mike Sokup

**Purpose of the Inspection:**

In accordance with the requirements of 40 C.F.R. 63 Subpart HHHHH, National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing, Sun Chemical (Sun) has been submitting semiannual compliance reports. On the reports dated July 30, 2009 and August 23, 2010, Sun has reported various problems with its chillers that have led to the emission of toluene, xylene, and benzene. Since these problems have happened repeatedly, EPA is doing an inspection to determine why.

**Overview of Company:**

Sun is a manufacturer of inks. According to their website, [www.sunchemical.com](http://www.sunchemical.com), they are the world's largest producer of printing inks and pigments.

The company was formed by a merger of various ink companies in 1929 and was, at the time, called General Printing Ink (GPI). The name was changed to Sun Chemical in 1945. The company now has more than 300 locations in 56 countries with over 10,000 employees. Annual sales are over \$3.5 billion.

The Kankakee location has 34 employees. A large addition is currently being added to the facility that will allow that location to produce inks for food packaging.

### **Facility Operations:**

Shannon Downey and I arrived at the facility at 11:00 A.M. on November 2, 2010. We asked to speak with the environmental manager of the facility, but we were told he was not onsite and we needed to speak with the plant manager, John McBurrows.

Mr. McBurrows said he has been with the company for 33 years and at this location for 28 years. He later said he has been at this location since 1979 and implied that he worked at another location for a little while and then returned to this location.

He explained that this location manufactures inks for various publications such as magazines, inserts, and fliers and has been operating since 1975. Approximately 26 million pounds of ink are produced at this facility each year. The facility is operated in two shifts: 11:00 P.M. to 7:30 A.M. and 7:30 A.M. to 3:30 P.M.

There are 26 formulas for finished inks and 27 formulas for intermediate inks. Sun makes concentrate onsite, stores it, and then thins it down to the desired formula. They currently have every formula in production.

The production process involves grinding solids into a premix which becomes a concentrate. The concentrates are stored and later toluene, which is the main component, and varnish are added to the concentrates to make ink. The varnish needs to be 98 degrees F so it is heated and pumped into the building. Mr. McBurrows mentioned that a chemical called Rot Sol was added to the process in 1979.

Finished ink is not stored onsite. After production it is shipped to their customers including Sears, Walmart, and JCPenney.

He also told us about the addition to the facility that will allow them to produce inks for food packaging. This facility will probably produce about 600 different formulas and they will manufacture inks according to the amount of storage they have. They will operate the new facility 24 hours a day and it will allow the Kankakee location to at least double its production.

Two other plants were shut down to allow for the expansion: one in Charlotte, N.C. and one in Brampton, Canada.

Shannon told Mr. McBurrows that the reason we are doing the inspection is because their chiller has been malfunctioning repeatedly and emitting pollutants. Thus, we would like to understand how the chiller works and why it is malfunctioning.

Mr. McBurrows said the chillers started operating at the end of 2006. They cool the solvent vapors, the condensers return the vapors to liquid form and the process results in the recovery of about 50% of the toluene. The refrigerant used in the chillers is glycol. They have two chillers and 30 condensers or one chiller for 15 condensers. The glycol loop for the chiller is a continuous operation.

Mr. McBurrows added that the chiller information goes into a database. There is minute by minute data and the temperature of the chillers is monitored. If the temperature exceeds 35.6 degrees F, which is a temperature required by the MACT, the chillers are investigated.

The chiller computer system has crashed in the past and they lost some data. After the crash, they moved data collection to a larger system. He added that they have about 2 years worth of data and last April they had their first six month review. Shannon asked if the emissions are calculated during deviations and they said no.

Mr. McBurrows also discussed chemical storage at the facility. There is an area called the Quad Room that is the base storage. It has a 63,000 gallon capacity. They used to have underground storage tanks and then they built a new tank farm.

Finally, Mr. McBurrows discussed some of the air pollution controls at the facility. He said LDAR monitoring is performed monthly by an outside company called Team Environmental and Environ has also worked with Sun Chemical in the past, presumably on other projects. He said they do not have any processes that emit pollutants directly to the atmosphere and they have dust collection by the grinders. They did receive a violation from the state of Illinois in 2008 for the MON and they have received a permit for the new portion of the facility. The construction manager, Allan, has the permit.

After explaining the facility processes, EPA toured the facility with Mike Sokup. During the tour, Mr. Sokup said their current dust collectors are inspected semi-annually and the dust collectors in the new facility will be inspected monthly.

Mr. Sokup said they previously used refrigerant R12 for the chillers and now they use R22. He claimed the refrigeration units are 50 tons each. Shannon verified this with him and he insisted that value is correct. He said they have a service contract on the chiller with Midwest Mechanical and they have copies of the maintenance records.

During the walkthrough Mr. Sokup also mentioned that some of the tanks were added to the site in the spring, as part of the new process that will be starting up.

We concluded the inspection at approximately 1:00 P.M.

**Records Obtained:**

Sun provided the following information:

- 1) The chemicals that make up their 53 ink formulas;
- 2) A spreadsheet with more details about the inks;
- 3) A floor plan of their facility;
- 4) A site plan for the safety pamphlet;
- 5) A miscellaneous site plan numbered SD6.01;
- 6) A spreadsheet with the sizes of various tanks;
- 7) Another spreadsheet with tank capacities according to the colors of ink in the tanks;
- 8) MSDS for ROT SOL;
- 9) Volatile component information for ROT SOL;
- 10) Certified product data for ROT SOL